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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/607,611	06/27/2003	Mike Ravkin	LAM2P428	8016

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EXAMINER	
WILKINS III, HARRY D	

ART UNIT	PAPER NUMBER
1742	

DATE MAILED: 12/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/607,611	RAVKIN ET AL.	
	Examiner	Art Unit	
	Harry D. Wilkins, III	1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 October 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-39* is/are pending in the application.

4a) Of the above claim(s) *3,11,12 and 25-35* is/are withdrawn from consideration.

5)☒ Claim(s) *13-24* is/are allowed.

6)☒ Claim(s) *1,2 and 4-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 November 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *11/23/04,7/19/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of the species of figures 2A-2C in the reply filed on 24 October 2005 is acknowledged. Applicant's election has been modified based on the telephone conversation between the Examiner and Attorney on 29 November 2005. Currently, the elected species reads on claims 1, 2, 4-10 and 13-24. Thus, claims 3, 11, 12 and 25-35 are withdrawn from consideration.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 2 and 4-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beck (US 4,367,123) in view of de Larios et al (US 6,488,040).

Beck teaches (see abstract and figure 2) an electroplating apparatus including a proximity head 10 capable of being electrically charged as an anode having an input for delivering a fluid to the surface of the substrate wafer.

Thus, Beck fails to teach more than one inputs and a plurality of outputs in the proximity head.

De Larios et al teach (see Summary of Invention and figures 6-8) a proximity head for applying a fluid to a surface whereby droplet formation on the surface is reduced by including a plurality of outlets in the head to remove the fluid by a pressure

differential. The reduction in droplet formation can reduce defects in a semiconductor wafer.

Therefore, it would have been obvious to one of ordinary skill in the art to have used the multiple inlet, multiple outlet proximity head as taught by de Larios et al in the apparatus of Beck because the proximity head of de Larios et al was capable of reducing defects in the semiconductor wafer substrates treated.

Regarding claim 2, the wafer of Beck was charged as the cathode.

Regarding claim 4, the proximity head of Beck was charged as the anode.

Regarding claims 5 and 8, the plurality of inputs and outputs on the proximity head of de Larios et al were (see figures 6-8) in the shape of annular rings and discrete conduits.

Regarding claims 6 and 7, these claims are related to the solution utilized in the apparatus. Since the composition of the solution does not limit the structure of the apparatus, the limitations regarding the composition of the fluid are not considered to lend patentable weight to the apparatus. See MPEP 2115.

Regarding claim 9, by utilizing the proximity head of de Larios et al, the electroplating of Beck would have been confined to the size of the proximity head. Regarding the fact that the area beneath the proximity head was less than the entirety of the wafer surface, this is related to the article worked upon by the apparatus. As such, it has not been given patentable weight. See MPEP 2115.

4. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Beck (US 4,367,123) in view of de Larios et al (US 6,488,040) as applied to claim 1 above, and further in view of Lehman et al (US 6,433,541).

The teachings of Beck and de Larios et al are described above.

Beck does not teach using an eddy current sensor to monitor the plated metal film.

Lehman et al teach (see abstract) an eddy probe for sensing information about a film during processing.

Therefore, it would have been obvious to one of ordinary skill in the art to have used the eddy probe as taught by Lehman et al in the apparatus of Beck in order to monitor the state of the plated metal film.

5. Claims 1, 2 and 4-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beck (US 4,367,123) in view of Mertens et al (US 6,491,764).

Beck teaches (see abstract and figure 2) an electroplating apparatus including a proximity head 10 capable of being electrically charged as an anode having an input for delivering a fluid to the surface of the substrate wafer.

Thus, Beck fails to teach more than one inputs and a plurality of outputs in the proximity head.

Mertens et al teach (see figure 1 and) a proximity head for applying a fluid to a surface including multiple conduits for supplying two different materials to the surface of a substrate.

Therefore, it would have been obvious to one of ordinary skill in the art to have used the multiple conduit proximity head as taught by Mertens et al in the apparatus of Beck because the proximity head of Mertens et al was capable of controlling the surface area to which the electrolyte would have been applied.

Regarding the fact that Mertens et al only teach one nozzle of the second type, the position is taken that it would have been within the skill and knowledge of a person of ordinary skill in thq art at the time the invention was made to duplicate the conduits since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. St. Regis Paper Co. v. Bremis Co., 193 USPQ 8., In re Harza, 274 F.2d 669, 124 USPQ 378 (CCPA 1960). See also MPEP 2144.04.VI.B.

Regarding claim 2, the wafer of Beck was charged as the cathode.

Regarding claim 4, the proximity head of Beck was charged as the anode.

Regarding claims 5 and 8, the plurality of inputs and outputs on the proximity head of Mertens et al were (see figures 6-8) in the shape of discrete conduits.

Regarding claims 6 and 7, these claims are related to the solution utilized in the apparatus. Since the composition of the solution does not limit the structure of the apparatus, the limitations regarding the composition of the fluid are not considered to lend patentable weight to the apparatus. See MPEP 2115.

Regarding claim 9, by utilizing the proximity head of Mertens et al, the electroplating of Beck would have been confined to the size of the proximity head. Regarding the fact that the area beneath the proximity head was less than the entirety

of the wafer surface, this is related to the article worked upon by the apparatus. As such, it has not been given patentable weight. See MPEP 2115.

6. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Beck (US 4,367,123) in view of Mertens et al (US 6,491,764) as applied to claim 1 above, and further in view of Lehman et al (US 6,433,541).

The teachings of Beck and Mertens et al are described above.

Beck does not teach using an eddy current sensor to monitor the plated metal film.

Lehman et al teach (see abstract) an eddy probe for sensing information about a film during processing.

Therefore, it would have been obvious to one of ordinary skill in the art to have used the eddy probe as taught by Lehman et al in the apparatus of Beck in order to monitor the state of the plated metal film.

Double Patenting

7. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., In re Berg, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); In re Goodman, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); In re Longi, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); In re Van Ornum, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); In re Vogel, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and In re Thorington, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to

be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

8. Claims 1, 2 and 4-10 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-29 of U.S. Patent No. 6,488,040 in view of Beck (for all claims) and Lehman et al (for claim 10 only). The proximity head as claimed is disclosed by the claims of the '040 patent. It would have been obvious to one of ordinary skill in the art to have charged the proximity head as an anode as suggested Beck because the proximity head would have been capable of precise control of where the electrolyte of Beck was applied to the substrate.

9. Claims 1, 2 and 4-10 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-20 of copending Application No. 10/261,839 in view of Beck (for all claims) and Lehman et al (for claim 10 only). The proximity head as claimed is disclosed by the claims of the '839 application. It would have been obvious to one of ordinary skill in the art to have charged the proximity head as an anode as suggested Beck because the proximity head would have been capable of precise control of where the electrolyte of Beck was applied to the substrate.

This is a provisional obviousness-type double patenting rejection.

Allowable Subject Matter

10. Claims 13-24 are allowed.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Harry D. Wilkins, III whose telephone number is 571-272-1251. The examiner can normally be reached on M-F 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy V. King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Harry D. Wilkins, III/

Harry D Wilkins, III
Examiner
Art Unit 1742

hdw